

REMARKS/ARGUMENTS

Favorable reconsideration of this application, is requested in view of the above amendments and in light of the following remarks and discussion.

Claims 1-15 are pending. No claims are amended or newly added. No new matter is added.

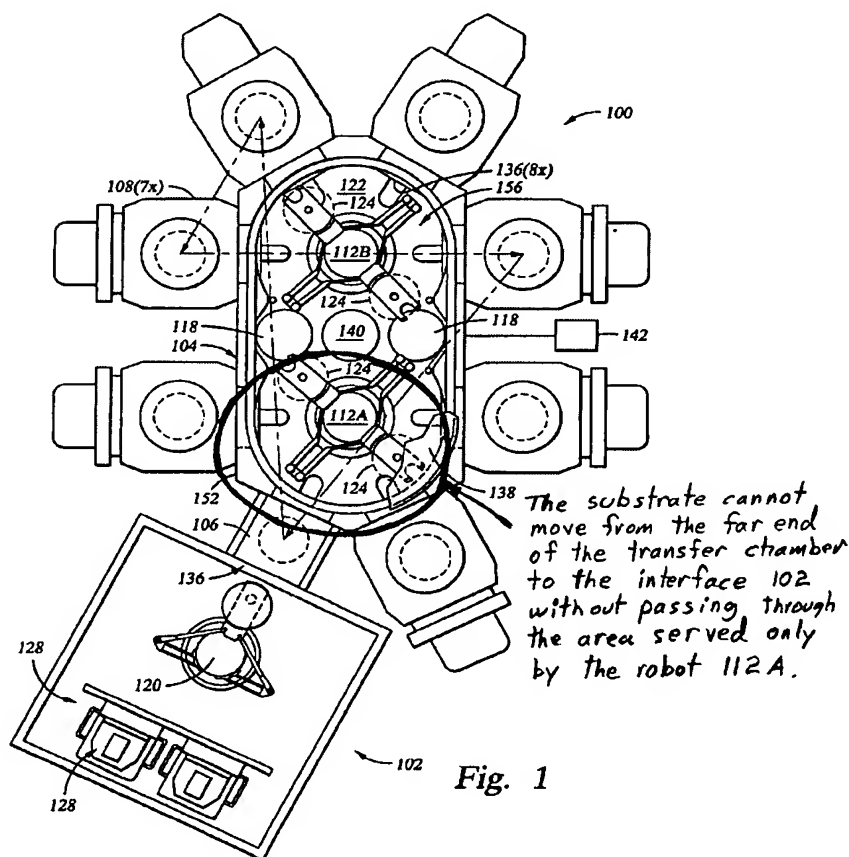
In the outstanding Office Action, Claims 1-9 and 11-13 were rejected under 35 U.S.C. § 102(e) as anticipated by Lowrance (U.S. Patent Pub. 2002/015986, herein "Lowrance"). Claims 10 and 14-15 were rejected under 35 U.S.C. § 103(a) as obvious over Lowrance. The outstanding Office Action also cited Official Notice in the rejection of Claims 10 and 14-15.

By way of review, the inventions recited in independent Claims 1, 3, and 4 are directed to methods for transferring an object to be processed in a processing apparatus, which has a number of process chambers including a specified process chamber for performing a process subject to contamination on the object; and a carrying mechanism having two picks, the method including a plurality of carrying steps of sequentially transferring the object from one chamber to another among the process chambers, wherein a **first pick of the two picks is used in carrying steps till right before the object is loaded into the specified process chamber, and a second pick of the two picks is used in a carrying step of loading the object into the specified process chamber and any subsequent carrying step for the object.**

One benefit of the above-noted arrangement is the reduction in transmission of contamination (i.e., contamination of the first pick) (see page 5, line 23-page 6, line 3 of the specification).

In Lowrance, the first robot (112A) is disposed on one side of the transfer chamber (104) adjacent to the load lock (106), and can transfer the substrate among the transfer platforms (118), the load lock (106) and the first chambers disposed adjacent to the first robot

(112A). As shown in Fig. 1 below, the second robot (112B) is disposed on an opposite side of the transfer chamber (104), and can transfer the substrate among the transfer platforms (118) and the second chambers, disposed adjacent to the second robot (112B). As the Office Action has stated, the second robot (112B) of Lowrance is used to transfer the substrate into one of the second chambers disposed adjacent to the second robot (112B) after the substrate is placed on the transfer platform (118) by the first robot (112A). However, Lowrance is silent about the next steps **after** transferring the substrate to the one of the second chambers disposed adjacent to the second robot (112B). Referring to annotated Fig. 1 of Lowrance below, it is clear that the first robot (112A) must be reused for unloading the substrate from the transfer chamber (104) to the factory interface (102), after the process conducted in one of the second chambers disposed adjacent to the second robot (112B) is over.



As shown in annotated Fig. 1 from Lowrance, any substrate located in the far side of the transfer chamber (104) will have to pass through the area of the transfer chamber (104) serviced only by the first robot (112A). When the first robot picks (112A) up the substrate from the transfer platforms (118), the substrate will have been deposited there by the second robot (112B). Therefore, the substrate cannot exit the far side of the transfer chamber (104) without having been handled by both the first robot (112A) and the second robot (112B). In other words, Lowrance fails to disclose that one of the two picks is used in carrying steps till right before the object is loaded into the specified process chamber, and the other pick of the two picks is used in a carrying step of loading the object into the specified process chamber and any subsequent carrying step for the object.

Further, as discussed above, in Lowrance, the two robots (112A) and (112B) are used separately in consideration of the **positional** relation between the robots and the chambers. Lowrance does not consider preventing transmission of contamination by using one pick before insertion and another pick after insertion. Therefore, it is believed that Lowrance cannot reduce transmission of contamination.

In accordance with the inventions recited in Claims 1, 3, and 4, the pick for loading the substrate into the specified process chamber for performing a process subject to contamination on the object is the second pick, and the second pick is also used in the carrying step of unloading the substrate from the specified process chamber and any subsequent carrying step for the object. Therefore, the inventions recited in Claims 1, 3, and 4 can reduce contamination of the first pick in the specified process chamber, and therefore can reduce contamination of the substrate by the first pick.

Accordingly, Applicants respectfully submit that independent Claims 1, 3, and 4 patentably distinguish over Lowrance for at least the reasons discussed above.

Dependent Claim 5 recites, in part:

The method of claim 4, wherein at least two object supporting mechanisms for supporting the object are provided in the pass portion; the object is supported by one of the object supporting mechanisms before being loaded into the specified process chamber; and the object is supported by another object supporting mechanism after being processed in the specified process chamber.

In contrast, Lowrance merely describes that one or more transfer platforms (118) are provide in the interior (122), and that a substrate retrieved from one of the load locks (106) by the first robot (112A) is set down on one of the transfer platforms. Nowhere does Lowrance teach or suggest that the substrate is supported by one of the transfer platforms before being loaded into the specified process chamber; and the substrate is supported by another transfer platform after being processed in the specified process chamber.

Dependent Claim 6 recites that when the gate valve of the pass portion is closed, only one of the gate valves of process chambers connected to each common transfer chamber which is isolated by the pass portion is selectively opened; and when the gate valve of the pass portion is opened, only one of the gate valves of process chambers connected to the common transfer chambers which communicate with each other by the pass portion is selectively opened.

In contrast, Lowrance does not disclose that the pass portion, via which plural vacuum processing apparatuses having a number of process chambers, a common transfer chamber and a carrying mechanism are connected, is provided with a gate valve. Lowrance merely describes that the load lock chamber (106) is selectively isolated from the factory interface and the transfer chamber by slit valves, and at least one slit valve is maintained in a closed portion to prevent loss of vacuum in the transfer chamber during substrate transfer through the load lock. Therefore, dependent Claim 6 further patentably distinguishes over Lowrance for at least the reasons discussed above.

Dependent Claim 8 recites:-

wherein the number of transfer ports is two, one of the transfer ports being used exclusively for loading and the other transfer port being used exclusively for unloading.

Dependent Claim 12 depends from Claim 4 and recites substantially similar features.

In contrast, Lowrance describes only one port (136) disposed in the factory interface (102). Thus, Lowrance fails to teach or suggest that the number of transfer ports is two, one of the transfer ports being used exclusively for loading and the other transfer port being used exclusively for unloading.

Dependent Claim 9 recites, in part:

The method of claim 8, wherein load lock chambers, each having a vacuum state and an atmospheric pressure state alternately therein, are respectively connected to the two transfer ports via gate valves; and

a loading transfer chamber provided with a loading carrying mechanism having two picks is connected in common to load lock chambers via gate valves; and

wherein one pick of the loading carrying mechanism is used when the object is loaded from the loading transfer chamber to the load lock chambers; and

the other pick of the loading carrying mechanism is used when the object is unloaded from the load lock chambers to the loading transfer chamber.

Dependent Claim 13 recites substantially similar features and depends from Claim 12.

In contrast, Lowrance describes one port (136), one load lock chamber (106) and one interface robot (120) disposed in the factory interface (102). Therefore, Lowrance fails to disclose that a loading transfer chamber provided with a loading carrying mechanism having two picks is connected in common to load lock chamber via gate valves, wherein one pick of the loading carrying mechanism is used when the object is loaded from the loading transfer chamber to the load lock chamber; and the other pick of the loading carrying mechanism is used when the object is unloaded from the load lock chamber to the loading transfer chamber.

Claims 2, 7, 10, 11, 14, and 15 each depend from one of independent Claims 1, 3, and 4. Accordingly, Applicants respectfully submit that Claims 2, 7, 10, 11, 14, and 15

patentably distinguish over Lowrance for at least the same reasons as independent Claims 1, 3, and 4 do.

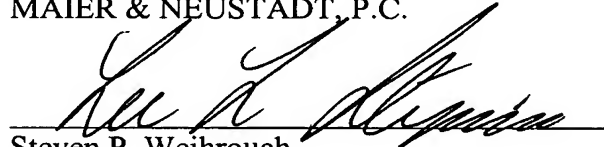
Regarding the Official Notice taken in the outstanding Office Action with respect to metal deposition, Applicants traverse the Official Notice inasmuch as the mere existence of process chambers used for metal deposition does not qualify as a teaching of deposition of metal film within the specific process chambers in combination with the features regarding first and second picks as recited in the independent claims. Rather, the invention recited in independent Claims 1, 3, and 4 is directed at reducing contamination, and is well suited to application to metal deposition inasmuch as prevention of contamination is especially critical in this process.

For the foregoing reasons, it is respectfully submitted that this application is now in condition for allowance. A Notice of Allowance for Claims 1-15 is earnestly solicited.

Should Examiner Patel deem that any further action is necessary to place this application in even better form for allowance, Examiner Patel is encouraged to contact Applicants' undersigned representative at the below-listed telephone number.

Respectfully submitted,

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